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HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 8910 RESTON, VA 20195			FINDLEY, CHRISTOPHER G	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/702,557	SEO ET AL.	
	Examiner	Art Unit	
	CHRISTOPHER FINDLEY	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 17 August 2009.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-30 and 32 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-30 and 32 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>8/21/2009, 10/27/2009, 12/10/2009</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application
	6) <input type="checkbox"/> Other: _____ .

DETAILED ACTION

1. The Examiner notes that the Foreign Patent Documents and the Other Documents listed on the IDS 1449 form filed 12/10/2009 have not been included in the file, and therefore have not been considered.

Response to Arguments

2. Applicant's arguments, see pages 12-14, filed 8/17/2009, with respect to the rejection of claims 1-30 and 32 in view of Kim et al. (US 20040068606 A1) have been fully considered and are persuasive. The rejection of claims 1-30 and 32 in view of Kim et al. (US 20040068606 A1) has been withdrawn as a result of the perfection of the foreign priority claim in the instant application. Accordingly, a new office action containing new grounds of rejection is furnished below. The claims are now rejected in view of Ikeda et al. (US 20060098936 A1) as the primary reference, wherein the disclosure of Ikeda is supported by provisional application number 60/413,153 filed on 9/25/2002.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim1-3, 13, 15-18, 22, 28, and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Ikeda et al. (US 20060098936 A1).

Re claim 1, Ikeda discloses a computer readable medium having a data structure for managing reproduction of video data having at least one reproduction path, comprising: a data area for storing stream files, each stream file including video data, each stream file associated with one of a portion common to the reproduction paths and a particular reproduction path among the reproduction paths of the video data (Ikeda: Fig. 3, data stream XXX.M2TS; Fig. 6 and paragraphs [0115]-[0116], the data stream XXX.M2TS consists of multiplexed audio and video data; Fig. 30A, multiple AV streams may be interleaved together; Fig. 31, file management information indicates a start point and duration for playback of the interleaved streams in a multi angle section); a playlist area storing a playlist file, the playlist file for identifying the common reproduction path portion and the particular reproduction path to reproduce, the playlist file including at least one playitem, each playitem indicating a playing interval from in-point until out-point, the in-point and out-point pointing to time positions on a time axis of the video data (Ikeda: Fig. 3, playlist YYY.PL; Fig. 9 and paragraphs [0126]-[0127], the structure of PL information is described as including in-point and out-point data; Fig. 30A, multiple playlist files may be included on the disk; Fig. 3, data streams have .M2TS extensions, clip information files have .CLPI extensions, and playlists have .PL extensions); and a clip information area for storing management information for managing reproduction of the video data, the management information including clip information files, each one of

the clip information files being associated with a corresponding stream file (Ikeda: clip information file XXX.CLPI; Fig. 8 and paragraph [0122], the clip information file contains stream management information including access unit entry, duration, and size of the streams; Fig. 30A, multiple stream management information sections may be present on the disk), each clip information file including a map for the associated stream file, the map mapping a presentation time stamp to an address for at least one entry point in the associated stream file (Ikeda: Fig. 31, the file management imformation for each AV stream includes address and length/offset information as a map for presentation of the interleaving units; paragraph [0396], it is desirable to express a playback starting time of an access unit with a presentation time stamp on a piece of picture data positioned at the head of the access unit and to express the address in an access unit as a serial packet number (SPN) of a PES packet), wherein the clip information file, the playlist file and the stream file is logically separate and include different file extensions (Ikeda: Fig. 3, data streams have .M2TS extensions, clip information files have .CLPI extensions, and playlists have .PL extensions).

Re **claim 2**, Ikeda discloses that the stream files are interleaved (Ikeda: Figs. 30A and 31).

Re **claim 3**, Ikeda discloses that the stream files associated with the particular reproduction path are interleaved between the stream files associated with the common reproduction path portion (Ikeda: Fig. 30A shows an interleaved section between two common path sections).

Re **claim 13**, Ikeda discloses a method of reproducing a data structure for managing reproduction of video data having at least one reproduction path recorded on a recording medium, comprising: reproducing stream files from a data area of the recording medium, each stream file including video data, each stream file associated with one of a portion common to the reproduction paths and a particular reproduction path among the reproduction paths (Ikeda: Fig. 3, data stream XXX.M2TS; Fig. 6 and paragraphs [0115]-[0116], the data stream XXX.M2TS consists of multiplexed audio and video data; Fig. 30A, multiple AV streams may be interleaved together; Fig. 31, file management information indicates a start point and duration for playback of the interleaved streams in a multi angle section); and reproducing a playlist file recorded in a playlist area of the recording medium, the playlist file for identifying the common reproduction path portion and the particular reproduction path to reproduce, the playlist file including at least one playitem, each playitem indicating a playing interval from in-point until out-point, the in-point and out-point pointing to time positions on a time axis of the video data (Ikeda: Fig. 3, playlist YYY.PL; Fig. 9 and paragraphs [0126]-[0127], the structure of PL information is described as including in-point and out-point data; Fig. 30A, multiple playlist files may be included on the disk; Fig. 3, data streams have .M2TS extensions, clip information files have .CLPI extensions, and playlists have .PL extensions); reproducing management information for managing reproduction of the video data from clip information files, the clip information files being recorded in a clip information area of the recording medium, each one of the clip information files associated with a corresponding stream file (Ikeda: clip information file XXX.CLPI; Fig. 8

and paragraph [0122], the clip information file contains stream management information including access unit entry, duration, and size of the streams; Fig. 30A, multiple stream management information sections may be present on the disk), each clip information file including a map for the associated stream file, the map mapping a presentation time stamp to an address for at least one entry point in the associated stream file (Ikeda: Fig. 31, the file management imformation for each AV stream includes address and length/offset information as a map for presentation of the interleaving units; paragraph [0396], it is desirable to express a playback starting time of an access unit with a presentation time stamp on a piece of picture data positioned at the head of the access unit and to express the address in an access unit as a serial packet number (SPN) of a PES packet), wherein the clip information file, the playlist file and the stream file is logically separate and include different file extensions (Ikeda: Fig. 3, data streams have .M2TS extensions, clip information files have .CLPI extensions, and playlists have .PL extensions).

Re **claim 15**, Ikeda discloses an apparatus for reproducing a data structure for managing reproduction of video data having at least one reproduction path recorded on a recording medium, comprising: an optical reproducing unit configured to reproduce data recorded on the recording medium (Ikeda: paragraph [0006], reading unit); a controller, coupled to the optical reproducing unit, configured to control the optical reproducing unit to reproduce stream files from the recording medium, each stream file including video data, each stream file associated with one of a portion common to the reproduction paths and a particular reproduction path among the reproduction paths

(Ikeda: Fig. 3, data stream XXX.M2TS; Fig. 6 and paragraphs [0115]-[0116], the data stream XXX.M2TS consists of multiplexed audio and video data; Fig. 30A, multiple AV streams may be interleaved together; Fig. 31, file management information indicates a start point and duration for playback of the interleaved streams in a multi angle section); the controller configured to the optical recording unit to reproduce a playlist file from a playlist area of the recording medium, the playlist file for identifying the common reproduction path portion and the particular reproduction path to reproduce, the playlist file including at least one playitem, each playitem indicating a playing interval from in-point until out-point, the in-point and out-point pointing to time positions on a time axis of the video data (Ikeda: Fig. 3, playlist YYY.PL; Fig. 9 and paragraphs [0126]-[0127], the structure of PL information is described as including in-point and out-point data; Fig. 30A, multiple playlist files may be included on the disk; Fig. 3, data streams have .M2TS extensions, clip information files have .CLPI extensions, and playlists have .PL extensions); and the controller configured to control the optical reproducing unit to reproduce management information for managing reproduction of the video data from clip information files, the clip information files recorded in a clip information area of the recording medium, each one of the clip information files being associated with a corresponding stream file (Ikeda: clip information file XXX.CLPI; Fig. 8 and paragraph [0122], the clip information file contains stream management information including access unit entry, duration, and size of the streams; Fig. 30A, multiple stream management information sections may be present on the disk), each clip information file including a map for the associated stream file, the map mapping a presentation time

stamp to an address for at least one entry point in the associated stream file (Ikeda: Fig. 31, the file management imformation for each AV stream includes address and length/offset information as a map for presentation of the interleaving units; paragraph [0396], it is desirable to express a playback starting time of an access unit with a presentation time stamp on a piece of picture data positioned at the head of the access unit and to express the address in an access unit as a serial packet number (SPN) of a PES packet), wherein the clip information file, the playlist file and the stream file is logically separate and include different file extensions (Ikeda: Fig. 3, data streams have .M2TS extensions, clip information files have .CLPI extensions, and playlists have .PL extensions).

Re claim 16, Ikeda discloses that only one stream file is associated with each particular portion representing a same time period of the video data (Ikeda: Fig. 34, PL information #1 is associated with stream management information #1, which is only associated with AV stream #1).

Re claim 17, Ikeda discloses that the video data is represented by packets (Ikeda: paragraphs [0116]-[0117]); and each map maps presentation time stamps to packet addresses (Ikeda: paragraph [0125], TMAP; paragraph [0396]).

Re claim 18, Ikeda discloses that the video data is represented by packets (Ikeda: paragraphs [0116]-[0117]); and each map maps presentation time stamps to packet addresses (Ikeda: paragraph [0125], TMAP; paragraph [0396]).

Claim 22 has been analyzed and rejected with respect to claim 3 above.

Claim 28 has been analyzed and rejected with respect to claim 3 above.

Re **claim 32**, Ikeda discloses that the playlist file includes at least one indicator for indicating a reproduction order of the common and particular reproduction path (Ikeda: paragraph [0126], playback path).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 4-11, 23, 24, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al. (US 20060098936 A1) in view of Yamane et al. (US 6393196 B1).**

Re **claim 4**, Ikeda does not explicitly disclose that the stream files have a size to prevent a reproducing apparatus buffer from under-flowing during reproduction of the stream files. However, Yamane discloses a multimedia stream enabling alternative reproduction of video data, wherein multimedia data is segmented into interleaved units of a particular size so that the seek distance of any seek operation can be suppressed to the size of the interleave unit, and reproduction can be sustained without causing a buffer overflow (Yamane: column 16, lines 4-15) and also guarding against buffer underflow (Yamane: column 16, lines 18-27). While Ikeda relates to Blu-Ray technology and Yamane relates to DVD technology, the Examiner asserts that one of ordinary skill in the art at the time of the invention would have found it obvious to

combine the principle relied upon from Yamane with the disclosure of Ikeda, because both documents disclose the use of interleaving units arranged on an recording medium, and the buffer underflow/overflow protection of Yamane is therefore applicable to the recording and reproducing scheme of Ikeda. Accordingly, in order to guard against such an overflow or underflow while enabling multi-angle control such as in Ikeda, regulation of the size of the interleaving units, as disclosed by Yamane, would be an obvious inclusion.

Re claim 5, Ikeda does not explicitly disclose that the stream files have a size to prevent the reproducing apparatus buffer from over-flowing during reproduction of the stream files. However, Yamane discloses a multimedia stream enabling alternative reproduction of video data, wherein multimedia data is segmented into interleaved units of a particular size so that the seek distance of any seek operation can be suppressed to the size of the interleave unit, and reproduction can be sustained without causing a buffer overflow (Yamane: column 16, lines 4-15) and also guarding against buffer underflow (Yamane: column 16, lines 18-27). While Ikeda relates to Blu-Ray technology and Yamane relates to DVD technology, the Examiner asserts that one of ordinary skill in the art at the time of the invention would have found it obvious to combine the principle relied upon from Yamane with the disclosure of Ikeda, because both documents disclose the use of interleaving units arranged on an recording medium, and the buffer underflow/overflow protection of Yamane is therefore applicable to the recording and reproducing scheme of Ikeda. Accordingly, in order to guard against such an overflow or underflow while enabling multi-angle control such as in

Ikeda, regulation of the size of the interleaving units, as disclosed by Yamane, would be an obvious inclusion.

Re claim 6, Ikeda does not explicitly disclose that more than one stream file is associated with a same one of a common reproduction path portion and a particular reproduction path when the one of the common reproduction path portion and the particular reproduction path includes data exceeding a stream file size to prevent the reproducing apparatus buffer from over-flowing during reproduction of the stream files. However, Yamane discloses a multimedia stream enabling alternative reproduction of video data, wherein multimedia data is segmented into interleaved units of a particular size so that the seek distance of any seek operation can be suppressed to the size of the interleave unit, and reproduction can be sustained without causing a buffer overflow (Yamane: column 16, lines 4-15) and also guarding against buffer underflow (Yamane: column 16, lines 18-27). While Ikeda relates to Blu-Ray technology and Yamane relates to DVD technology, the Examiner asserts that one of ordinary skill in the art at the time of the invention would have found it obvious to combine the principle relied upon from Yamane with the disclosure of Ikeda, because both documents disclose the use of interleaving units arranged on an recording medium, and the buffer underflow/overflow protection of Yamane is therefore applicable to the recording and reproducing scheme of Ikeda. Accordingly, in order to guard against such an overflow or underflow while enabling multi-angle control such as in Ikeda, regulation of the size of the interleaving units, as disclosed by Yamane, would be an obvious inclusion.

Claim 7 has been analyzed and rejected with respect to claim 5 above.

Claim 8 has been analyzed and rejected with respect to claim 6 above.

Claim 9 has been analyzed and rejected with respect to claim 4 above.

Claim 10 has been analyzed and rejected with respect to claim 5 above.

Claim 11 has been analyzed and rejected with respect to claim 6 above.

Claim 23 has been analyzed and rejected with respect to claim 5 above.

Claim 24 has been analyzed and rejected with respect to claim 4 above.

Claim 29 has been analyzed and rejected with respect to claim 5 above.

Claim 30 has been analyzed and rejected with respect to claim 4 above.

7. **Claims 12, 14, 19, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al. (US 20060098936 A1) in view of Kato et al. (US 20050019007 A1).**

Re **claim 12**, Ikeda discloses a data structure for managing reproduction of video data having at least one reproduction path on a recording medium, comprising: stream files of a data area of the recording medium, each stream file including video data, each stream file associated with one of a portion common to the reproduction paths and a particular reproduction path among the reproduction paths (Ikeda: Fig. 3, data stream XXX.M2TS; Fig. 6 and paragraphs [0115]-[0116], the data stream XXX.M2TS consists of multiplexed audio and video data; Fig. 30A, multiple AV streams may be interleaved together; Fig. 31, file management information indicates a start point and duration for playback of the interleaved streams in a multi angle section); a playlist file in a playlist area of the recording medium, the playlist file for identifying the common reproduction

path portion and the particular reproduction path to reproduce, the playlist file including at least one playitem, each playitem indicating a playing interval from in-point until out-point, the in-point and out-point pointing to time positions on a time axis of the video data (Ikeda: Fig. 3, playlist YYY.PL; Fig. 9 and paragraphs [0126]-[0127], the structure of PL information is described as including in-point and out-point data; Fig. 30A, multiple playlist files may be included on the disk; Fig. 3, data streams have .M2TS extensions, clip information files have .CLPI extensions, and playlists have .PL extensions); and management information for managing of the video data in clip information files, the clip information files recorded in a clip information area of the recording medium (Ikeda: clip information file XXX.CLPI; Fig. 8 and paragraph [0122], the clip information file contains stream management information including access unit entry, duration, and size of the streams; Fig. 30A, multiple stream management information sections may be present on the disk), each one of the clip information files being associated with a corresponding stream file, each clip information file including a map for the associated stream file, the map mapping a presentation time stamp to an address for at least one entry point in the associated stream file (Ikeda: Fig. 31, the file management information for each AV stream includes address and length/offset information as a map for presentation of the interleaving units; paragraph [0396], it is desirable to express a playback starting time of an access unit with a presentation time stamp on a piece of picture data positioned at the head of the access unit and to express the address in an access unit as a serial packet number (SPN) of a PES packet), wherein the clip information file, the playlist file and the stream file is logically separate and include different file extensions (Ikeda: Fig.

3, data streams have .M2TS extensions, clip information files have .CLPI extensions, and playlists have .PL extensions).

Ikeda also does not specifically disclose recording on the medium using either the data structure arrangement or a recording apparatus. However, Kato discloses a recording medium including the same directory structure as that disclosed by Ikeda (Kato: Fig. 14), along with a corresponding write unit (Kato: Fig. 1, write unit 22) and recording methods (Kato: Figs. 128-131, and 133). Since both Ikeda and Kato relate to processing of AV streams, clip information files, and playlists with respect to an optical recording medium, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the recording capabilities of Kato with the system of Ikeda in order to include clip information files on recording mediums that facilitate the efficient searching for specific entry points for the purpose of performing random access (Kato: paragraph [0006]).

Re **claim 14**, Ikeda discloses an apparatus for processing a data structure for managing reproduction of video data having at least one reproduction path on a recording medium, comprising: an optical unit configured to process data on the recording medium (Ikeda: paragraph [0006], reading unit); and a controller, coupled to the optical unit, configured to control the optical recording unit to process stream files output from the encoder in a data area of the recording medium, each stream file including video data, each stream file associated with one of a portion common to the reproduction paths and a particular reproduction path among the reproduction paths (Ikeda: Fig. 3, data stream XXX.M2TS; Fig. 6 and paragraphs [0115]-[0116], the data

stream XXX.M2TS consists of multiplexed audio and video data; Fig. 30A, multiple AV streams may be interleaved together; Fig. 31, file management information indicates a start point and duration for playback of the interleaved streams in a multi angle section); the controller configured to the optical unit to process a playlist file in a playlist area of the recording medium, the playlist file for identifying the common reproduction path portion and the particular reproduction path to reproduce, the playlist file including at least one playitem, each playitem indicating a playing interval from in-point until out-point, the in-point and out-point pointing to time positions on a time axis of the video data (Ikeda: Fig. 3, playlist YYY.PL; Fig. 9 and paragraphs [0126]-[0127], the structure of PL information is described as including in-point and out-point data; Fig. 30A, multiple playlist files may be included on the disk; Fig. 3, data streams have .M2TS extensions, clip information files have .CLPI extensions, and playlists have .PL extensions); and the controller configured to control the optical unit to process management information for managing reproduction of the video data in clip information files, the clip information files being recorded in a clip information area of the recording medium, each one of the clip information files being associated with a corresponding stream file (Ikeda: clip information file XXX.CLPI; Fig. 8 and paragraph [0122], the clip information file contains stream management information including access unit entry, duration, and size of the streams; Fig. 30A, multiple stream management information sections may be present on the disk), each clip information file including a map for the associated stream file, the map mapping a presentation time stamp to an address for at least one entry point in the associated stream file (Ikeda: Fig. 31, the file management imformation for each AV

stream includes address and length/offset information as a map for presentation of the interleaving units; paragraph [0396], it is desirable to express a playback starting time of an access unit with a presentation time stamp on a piece of picture data positioned at the head of the access unit and to express the address in an access unit as a serial packet number (SPN) of a PES packet), wherein the clip information file, the playlist file and the stream file is logically separate and include different file extensions (Ikeda: Fig. 3, data streams have .M2TS extensions, clip information files have .CLPI extensions, and playlists have .PL extensions).

Ikeda also does not specifically disclose recording on the medium using either the data structure arrangement or a recording apparatus or the use of an encoder configured to encode at least video data having at least one reproduction path. However, Kato discloses a recording medium including the same directory structure as that disclosed by Ikeda (Kato: Fig. 14), along with a corresponding write unit (Kato: Fig. 1, write unit 22) and recording methods (Kato: Figs. 128-131, and 133), wherein the system includes an AV encoder (Kato: paragraph [0147]). Since both Ikeda and Kato relate to processing of AV streams, clip information files, and playlists with respect to an optical recording medium, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the recording capabilities of Kato with the system of Ikeda in order to include clip information files on recording mediums that facilitate the efficient searching for specific entry points for the purpose of performing random access (Kato: paragraph [0006]).

Re **claim 19**, arguments analogous to those presented regarding claim 3 are applicable to claim 19, and therefore claim 19 has been analyzed and rejected with respect to claim 3.

Re **claim 25**, arguments analogous to those presented regarding claim 3 are applicable to claim 25, and therefore claim 25 has been analyzed and rejected with respect to claim 3.

8. Claims 20, 21, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al. (US 20060098936 A1) in view of Kato et al. (US 20050019007 A1) as applied to claim 12, 14, 19, and 25 above, and further in view of Yamane et al. (US 6393196 B1).

Re **claim 20**, arguments analogous to those presented regarding claim 5 are applicable to claim 20, and therefore claim 20 has been analyzed and rejected with respect to claim 5.

Re **claim 21**, arguments analogous to those presented regarding claim 4 are applicable to claim 21, and therefore claim 21 has been analyzed and rejected with respect to claim 4.

Re **claim 26**, arguments analogous to those presented regarding claim 5 are applicable to claim 26, and therefore claim 26 has been analyzed and rejected with respect to claim 5.

Re **claim 27**, arguments analogous to those presented regarding claim 4 are applicable to claim 27, and therefore claim 27 has been analyzed and rejected with respect to claim 4.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER FINDLEY whose telephone number is (571)270-1199. The examiner can normally be reached on Monday-Friday (8:30 AM-5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on 571-272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Marsha D. Banks-Harold/
Supervisory Patent Examiner, Art Unit 2621

/Christopher Findley/